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The effectiveness of the use of anti-dysbiotic hepatoprotector in the complex treatment of patients with periodontal inflammatory diseases on the background of chronic non-calculous cholecystitis

Summary. Inflammatory periodontal diseases continue to be one of the pressing problems of modern dentistry [1]. It is known that there is a close relationship between general-somatic pathology and diseases of the oral cavity [2].
The aim of the study – to learn the effectiveness of the use of anti-dysbiotic hepatoprotector in the complex treatment of patients with periodontal inflammatory diseases on the background of chronic non-calculous cholecystitis.
Materials and Methods. The main (group 1) group consisted of 106 people who suffered from inflammatory periodontal disease (IPD) with concomitant chronic non-calculous cholecystitis (CNC). The comparison group included 92 patients with IPD without concomitant pathology (group 2). To compare the research results of the patients with IPD, 30 healthy teethed individuals without periodontal pathology and without somatic diseases (group 3 or the control group) were involved. The state of the hepatobiliary system in patients of the main group was assessed by the doctors of the Gastroenterology Department of Zolochiv District Hospital of Lviv region.
Results and Discussion. The symptomatic HCG and the presence of solid and soft dental deposits were diagnosed in all patients. The Green-Vermillion's index was the highest in patients from the main group (1.67±0.01); it was probably ($p<0.05$) higher than that in the comparison group (1.54±0.04), as well as in the control group (0.44±0.07). The PMA index in the subgroup 1A immediately after treatment decreased by 9.7 ($p<0.001$) times. The index of bleeding in the subgroup 1A decreased by 10.7 ($p<0.001$) times. The PMA index in the subgroup 1A immediately after treatment decreased by 10.4 ($p<0.001$) times. The index of bleeding in the subgroup 1A under the influence of the proposed therapy decreased by 6.5 ($p<0.001$) times.The difference regarding the data before treatment remained lower by 2.2 times and 2.0 ($p<0.001$) times, however, the difference between the subgroups 1A and 1B in 3 months and 6 months was already 2.1 times in both cases.
Conclusions. It was found that the clinical course of inflammatory periodontal diseases was much more difficult in these patients. The presence of pathology in the hepatobiliary system in patients increases the risk of periodontal disease. Therefore, in order to improve the efficacy of treatment, it is advisable to use this antidysbiotic drug in the complex treatment, and the results obtained in 3 and 6 months after treatment indicate a long-lasting positive effect.

Key words: hepatobiliary pathology; hepatoprotector; gingivitis; periodontitis.

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Ефективність використання антидисбіотичного гепатопротектора у комплексному лікуванні пацієнтів із запальними захворюваннями пародонта на тлі хронічного некалькульозного холециститу

Резюме. Запальні захворювання пародонта залишаються однією з актуальних проблем у сучасній стоматології. Відомо, що існує тісний зв'язок між загальносоматичною патологією та захворюваннями порожнини рота. Патологія гепатобіліарної системи значно впливає на стан органів порожнини рота.
Мета дослідження – вивчити ефективність застосування антидисбіотичного гепатопротектора при комплексному лікуванні пацієнтів із запальними захворюваннями пародонта на тлі хронічного некалькульозного холециститу.
Матеріали і методи. Проведено клінічне та індексне дослідження стану тканин пародонта у 198 пацієнтів, в якому показано поширеність патології пародонта у хворих на хронічний некалькульозний

холецистит. Обстежених пацієнтів було поділено на групи залежно від методу лікування, а результат оцінювали до лікування, після лікування та через 3 та 6 місяців після лікування. До комплексної терапії включили антидисбіотичний гепатопротектор.
Результати досліджень та їх обговорення. Проведені дослідження довели, що у хворих із гепатобіліарною патологією збільшується ймовірність виникнення захворювань пародонта, а після проведеного лікування пародонтологічні показники та індекс гігієни значно знижуються, особливо вірогідно у групі, де використовували запропоновану терапію, а віддалені результати були стійкими протягом півроку.
Висновки. Клінічний перебіг запальних захворювань пародонта був набагато складнішим у цих хворих. Наявність патології в гепатобіліарній системі у пацієнтів підвищує ризик розвитку пародонтозу. Тому, щоб підвищити ефективність лікування, доцільно використовувати антидисбіотик «Леквін" у комплексному лікуванні, а результати, отримані через 3 і 6 місяців після лікування, свідчать про довготривалі позитивні ефекти.

Ключові слова: гепатобіліарна патологія; гепатопротектор; гінгівіт; пародонтит.

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Эффективность использования антидисбиотического гепатопротектора в комплексном лечении пациентов с воспалительными заболеваниями пародонта на фоне хронического некалькулёзного холецистита

Резюме. Воспалительные заболевания пародонта продолжают оставаться одной из актуальных проблем современной стоматологии. Известно, что существует тесная взаимосвязь между общей соматической патологией и заболеваниями полости рта. Патология пищеварительной системы оказывает значительное влияние на состояние органов полости рта.
Цель исследования – изучить эффективность использования антидисбиотического гепатопротектора при комплексном лечении пациентов с воспалительными заболеваниями пародонта на фоне хронического некалькулёзного холецистита.
Материалы и методы. Проведено клиническое и индексное исследования состояния тканей пародонта у 198 пациентов, в котором показано распространенность патологии пародонта у больных хроническим некалькулёзным холециститом. Обследованных пациентов разделили на группы в зависимости от метода лечения, а результат оценивали до лечения, после лечения и через 3 и 6 месяцев после лечения. В комплексную терапию включили антидисбиотический гепатопротектор.
Результаты исследований и их обсуждение. Проведенные исследования показали, что у больных с гепатобилиарной патологией увеличивается вероятность возникновения заболеваний пародонта, а после проведенного лечения пародонтологические показатели и индекс гигиены значительно снижаются, особенно вероятно в группе, где использовали предложенную терапию, а отдаленные результаты были устойчивыми в течение полугода.
Выводы. Клинический курс воспалительных заболеваний пародонта был намного сложнее у этих пациентов. Наличие патологии в гепатобилиарной системе у пациентов повышает риск заболевания пародонта. Поэтому для повышения эффективности лечения целесообразно использовать этот антидисбиотик «Леквин" в комплексном лечении, а результаты, полученные через 3 и 6 месяцев после лечения, указывают на длительный положительный эффект.

Ключевые слова: гепатобилиарная патология; гепатопротектор; гингивит; пародонтит.

Introduction. Inflammatory periodontal diseases continue to be one of the pressing problems of modern dentistry [1]. It is known that there is a close relationship between general-somatic pathology and diseases of the oral cavity [2]. Defects of the hepatobiliary system function play a decisive role in the pathogenesis of hepato-oral syndrome, since opportunistic and pathogenic microorganisms get into the circulatory system affecting organs and systems of the human organism, including the tissues of the oral cavity [2, 3]. It has also been shown that intestinal dysbiosis negatively affects the state of the hepatobiliary system

[4], therefore the use of anti-dysbiotic agents should be regarded as appropriate as they act on the intestinal microbiocenosis, eliminate dysbiosis and provide hepatoprotective activity. The anti-dysbiotic hepatoprotector Lekvin is one of such means [5, 6]. It has an attributable hepatoprotective, antidysbiotic, angioprotective, immunomodulatory and adaptive-trophic action.

Materials and Methods. The main (group 1) group consisted of 106 people who suffered from inflammatory periodontal disease (IPD) with concomitant chronic non-calculous cholecystitis (CNC). The comparison group included 92 patients with IPD without concomitant pathology (group 2). To compare the research results of the patients with IPD, 30 healthy teethed individuals without periodontal pathology and without somatic diseases (group 3 or the control group) were involved. The state of the hepatobiliary system in patients of the main group was assessed by the doctors of the Gastroenterology Department of Zolochiv District Hospital of Lviv region.

The inclusion criteria were patients with chronic catarrhal gingivitis (HCG) and generalized periodontitis of the initial first degree of development (the initial GP – degree 1) with concomitant CNC, who didn't have any contraindications to treatment by the proposed drugs and methods and who followed clearly the recommendations of the doctor and provided informed consent for research and treatment.

The exclusion criteria were patients with: dentofacial deformations and anomalies of the dental arch, pathological erosion, orthodontic appliances, patients with chronic viral hepatitis, HIV infection, active state of tuberculosis, presence of concomitant diseases of the other organs and systems, cardiovascular pathology, chronic diseases of the nervous and endocrine systems, autoimmune pathology, allergic diseases, presence of tumors of any localization. These criteria also included the persons subject to regular medical check-up due to any pathology as well as the persons provided the personal refusal to take part in the research and treatment.

The distribution of patients of the main group and the comparison group by the degree of IPD development is presented in the Table 1.

Table 1. Distribution of patients of the main group and the comparison group by the degree of IPD development, absolute frequency (%)

Degree of development	Sex				Of all	
	men		women			
	absolute frequency	%	absolute frequency	%	absolute frequency	%
Main group						
HCG	21	19.81	27	25.47	48	45.28
the initial GP - the 1 degree	20	18.87	38	35.85	58	54.72
of all	41	38.68	65	61.32	106	100
Comparison group						
HCG	21	22.82	23	25.00	44	47.82
the initial GP - the 1 degree	24	26.09	24	26.09	48	52.18
of all	45	48.91	47	51.09	92	100

As can be seen from the data of the Table. 1, among the patients with IPD progressing on the background of hepatobiliary pathology, women predominated as their number was 61.32 % (65/106) when the men's number was 38.68 % (41/106). In the comparison group (group 2), as well as in the main group (group 1), there occurred to be an increased number of women – 51.09 % (47/92) compared to men – 48.91 % (45/92).

The percentage of patients with the initial GP – degree 1 was 54.72 % (58/106) in the main group and 52.18 % (48/92) in the comparison group.

Patients were examined according to generally accepted methods. Each of them got a dental outpatient card and the clinical data were entered into the examination record sheet developed by us. To find out the anamnesis and diagnosis of the concomitant somatic disease, the

past medical history of the indoor patient was studied.

During the clinical examination of the patients, the periodontal condition was evaluated using: the Green-Vermillion's Oral Hygiene Index-Simplified (OHI-S, Green-Vermillion, 1964), however, for a more informative evaluation, a color agent was used, in particular, the Schiller-Pisarev's fluid [7]; the degree of the gingival bleeding – by the Muhlemann's method (H.R. Muhlemann, 1971) [7]; to assess the severity of gingival inflammation, the Parma's Papillary-Marginal-Alveolar Index (PMA) was determined (C. Parma, 1960) [7].

In order to study the efficacy of treatment, the patients with the chronic IPD and the pathology of the hepatobiliary system (the main group or the group 1) were divided depending on the intended treatment on the following main subgroups – 1A and 1B. In case of the patients of the main subgroup 1A, the treatment package proposed by us was included additionally into the basic therapy. The patients of the subgroups 1B were provided with treatment stipulated by the Protocol for provision of medical care under the specialty of Therapeutic Dentistry.

For all patients with IPD at the initial stage the sanitation of the oral cavity was performed: caries and its complications were treated; the patients were trained the rules of oral care with multiple control; professional hygiene procedures were carried out. After antiseptic treatment of the oral cavity and gingivae, the supragingival and subgingival dental deposits were carefully removed. The mechanical removal of the dental deposits was combined with ultrasound removal, which was carried out using the apparatus «Woodpecker».

For local medical treatment of the patients from the subgroup 1B, the antiseptic rinses and mouthwashes were performed with a 0.05 % aqueous solution of Chlorhexidine Bigluconate, as well as the gel Metrogyl Denta was applied for 30 minutes twice a day. The full course included 5–7 days in case of HCG and 7–10 days in case of the initial GP – degree 1.

The patients of the subgroups 1A were prescribed anti-dysbiotic drug Lekvin. In these subgroups, Lekvin was prescribed as 1–2 tables 2–3 times daily after meal for 10 days. In addition, the patients performed daily oral applications Lekvin gel by applying 0.52 ml (on-time pressure of the dispenser) thin gen layer on the gingiva after meal 2–3 times a day for 5–7 days in case of HCG and 7–10 days in case of the initial GP – degree 1. The drug has hepatoprotective, anti-dysbiotic, immunomodulatory and adaptive-trophic action. The composition of the Lekvin includes the following components: lecithin, quercetin, inulin, and calcium citrate.

During inpatient treatment the patients with IPD with hepatobiliary pathology (group 1) received the common therapy, which was prescribed by the gastroenterologists. Within the treatment process the patients' oral cavities were examined; the state of periodontal tissues were determined; the dental sanitation was carried out; the examination record sheets were filled out; the consents were signed; the patients were trained the oral care. After the completion of inpatient treatment, a comprehensive therapy of IPD was initiated, depending on the patients' subgroup.

Results and Discussion. The symptomatic HCG and the presence of solid and soft dental deposits were diagnosed in all patients. The Table 2 presents the results of the index evaluation of the state of periodontal tissues in patients with inflammatory periodontal diseases and in healthy individuals.

Table 2. Index evaluation of the state of periodontal tissues in patients with IPD with and without hepatobiliary system pathology and in healthy individuals (M±m)

	Control group n=30	Comparison group n=92	Main group n=106
OHI-S, units	0.44±0.07	1.54±0.04*	1.67 ± 0.01*#
PMA, %	0	40.77±0.60*	51.02±0.55*#
Degree bleeding, points	0	1.21±0.03*	1.78 ± 0.01*#

Note: * – probability indicator (p<0,05) in comparison with the control group; # – probability indicator (p<0,05) in comparison with the comparison group.

The Green-Vermillion's index was the highest in patients from the main group (patients with IPD with CAC) (1.67±0.01); it was probably (p <0.05) higher than that in the comparison group

(patients with IPD without hepatobiliary system pathology) (1.54±0.04), as well as in the control group (0.44±0.07).

It was established that the PMA index had the highest indicator in the main group (51.02±0.55). It was probably (p <0.05) higher than that in the control group (40.77±0.60). We see the same data by analyzing the indicator of the bleeding index – its highest index was equal to (1.78±0.01) in the group of patients with IPD, which was likely to exceed the data in patients with IPD without somatic pathology.

The evaluation of the condition of periodontal tissues was carried out at different stages of treatment (before treatment, immediately after treatment and in 3 and 6 months after treatment) using hygienic and periodontal indices. The results are presented in the Tables 3 and 4.

Table 3. Dynamics of clinical indices in patients with HCG with IPD at different treatment stages (M ± m)

		Before treatment	Immediately after treatment	3 months after treatment	6 months after treatment
OHI-S, units	Subgroups 1A n=23	1.59±0.04	0.13±0.01*	0.14±0.01*	0.15±0.01*
	Subgroups 1B n=25	1.60±0.04	0.13±0.01*	0.21±0.03*#	0.27±0.03*#
PMA, %	Subgroups 1A n=23	45.94±1.89	4.72±0.17*	5.4±0.30*	5.87±0.33*
	Subgroups 1B n=25	45.61±1.74	4.95±0.22*	7.20±0.70*#	8.84±0.87*#
PBI, points	Subgroups 1A n=23	1.71±0.04	0.16±0.004*	0.19±0.01*#	0.23±0.02*#
	Subgroups 1B n=25	1.76±0.04	0.17±0.004*	0.26±0.03*#	0.36±0.06*#

Notes: There have been no apparent differences between the indicators in patients of the subgroups 1A and 1B prior to the treatment; * – probability indicator (p<0.05) in comparison with the indicators before treatment; # – probability indicator (p<0,05) between the indicators of the subgroup 1A and subgroup 1B.

Table 4. Dynamics of clinical indices in patients with IPD with the initial GP – degree 1 at the different stages of treatment (M ± m)

		Before treatment	Immediately after treatment	3 months after treatment	6 months after treatment
OHI-S, units	Subgroup 1A n=31	1.74±0.02	0.12±0.008*	0.17±002*	0.18±0.02*
	Subgroup 1B n=27	1.75±0.03	0.18±0.015*	0.30±0.03*#	0.56±0.05*#
PMA, %	Subgroup 1B n=31	56.13±0.77	5.41±0.11*	6.43±0.18*#	7.30±0.18*#
	Subgroup 1B n=27	56.89±0.78	5.98±0.19*	7.37±0.15*#	10.80±0.76*#
PBI, points	Subgroup 1A n=31	1.88±0.07	0.29±0.026*	0.41±0.08*#	0.45±0.08*#
	Subgroup 1B n=27	1.89±0.05	0.53±0.08 *	0.85±0.12*#	0.95±0.10*#

Notes: There have been no apparent differences between the indicators in patients of the subgroups 1A and 1B prior to the treatment; * – probability indicator (p<0.05) in comparison with the indicators before treatment; # – probability indicator (p<0.05) between the indicators of the subgroup 1A and subgroup 1B.

Consequently, the Green-Vermillion's index in the subgroup 1A under the influence of the proposed therapy decreased by 12.2 (p <0.05) times, remaining practically unchanged in 3 months and 6 months after treatment. Compared with the data before treatment, the indicator in

3 and 6 months was lower by 11.4 times and 10.6 times, respectively (p<0.001). In patients with the same somatic status in the subgroup 1B after treatment performed, the OHI-S index indicator decreased by 12.3 (p<0.001) times. In 3 months and 6 months, the indicator increased by 1.6 times and 2.08 times, respectively, compared to the data immediately after treatment. The difference with the data before treatment was lower by 7.6 times and 5.9 (p<0.001) times, however, comparing the indicators of this index of the subgroup 1A with the subgroup 1B in 3 months, we see that the indicator increased by 1.5 times and in 6 months by 1.8 times in the subgroup 1B.

The PMA index in the subgroup 1A immediately after treatment decreased by 9.7 (p<0.001) times. In 3 months this indicator was 8.5 times lower than the indicator before treatment, and in comparison with the indicator immediately after treatment it increased by 1.14 times. In 6 months the indicator decreased by 7.8 times in relation to the indicator before treatment and increased by 1.2 times compared to the data immediately after treatment and increased by 1.09 times compared to the indicator in 3 months after treatment (p> 0.05). Under the influence of treatment the decrease of indicator of the index of PMA was achieved by 9.2 (p<0.001) times in patients of the subgroup 1B. In 3 months, the difference regarding the data before treatment was 6.33 (p<0.001) times lower, and compared to the indicators immediately after treatment – 1.5 times higher. In 6 months, the difference regarding the data before treatment was 5.2 times lower, regarding the indicator immediately after treatment – 1.8 times higher and regarding the data in 3 months after treatment – 1.2 times higher. Comparing the indicators of this index of the subgroup 1A with the subgroup 1B in 3 months, we see that the increased by 1.33 times in the subgroup 1B and by 1.5 times in 6 months.

The index of bleeding in the subgroup 1A decreased by 10.7 (p<0.001) times. In 3 months and 6 months, this index was 9.0 times and 7.4 times lower compared to the pre-treatment indicators (p<0.001), and compared to the data immediately after treatment such indicators increased 1.2 times and 1.4 times respectively. In the subgroup 1B, under the influence of treatment, a decrease of indicator of the bleeding index was achieved by 10.3 (p<0.001) times. In 3 months and 6 months the index increased by 1.5 times and 2.1 times, respectively, compared to the data immediately after treatment. The difference regarding the data before treatment remained lower 6.8 times and 4.9 (p<0.001) times, however, the difference between the subgroups 1A and 1B in 3 months was 1.4 times (p<0.05) and in six months – 1.6 times (p<0.05).

Thus, the data presented in the Table demonstrate that the Green-Vermillion's index in the subgroup 1A under the influence of the proposed therapy decreased by 14.5 (p<0.01) times. In 3 months the indicator remained lower by 10.2 times and during the period of half a year it was 9.7 times lower compared to the data before treatment. Comparing with the data immediately after treatment, the indicator increased by 1.4 times in 3 months and by 1.5 times in 6 months . In patients from the subgroup 1B after treatment, the OHI-S index indicator was decreased by 9.7 (p<0.001) times. In 3 months and 6 months, the indicator increased by 1.6 times and 3.1 times respectively, compared with the data immediately after treatment. The difference regarding the data before treatment was 5.8 times and 3.1 (p<0.001) times lower, respectively, however, comparing the indicators of this index in patients from the subgroup 1A with the subgroup 1B in 3 months, we see that the indicator is 1.8 times higher in the subgroup 1B and 3.1 times in 6 months.

The PMA index in the subgroup 1A immediately after treatment decreased by 10.4 (p<0.001) times. In 3 months, this indicator was 8.7 times lower than the indicator before treatment, and compared with this indicator immediately after treatment it increased by 1.2 times. In 6 months, the indicator decreased by 7.7 times against the indicator before treatment and increased by 1.1 times against the indicator in 3 months after treatment (p<0.001). In patients with the same somatic status in the subgroup 1B, under the influence of treatment, a decrease in the index of PMA by 9.5 (p<0.001) times was achieved. In 3 months, the difference regarding the data before treatment was by 7.7 (p<0.001) times lower and in 6 months by 5.3 times lower, and compared with the data immediately after treatment, the indicator in 3 months increased by 1.2 times and in 6 months by 1.8 times. Comparing the indicators of this index of the subgroup 1A with the subgroup 1B in 3 months, we see that the indicator is 1.1 times higher in the subgroup 1B and 1.5 times higher in 6 months.

The index of bleeding in the subgroup 1A under the influence of the proposed therapy decreased by 6.5 (p<0.001) times. After 3 and 6 months, this indicator was lower compared with the data before treatment by 4.6 times and 4.2 times respectively,

and compared to the data immediately after treatment it increased in 3 months by 1.4 times, and after 6 months – by 1.6 times. In the subgroup 1B, under the influence of treatment, a decrease in the index of bleeding by 3.6 ($p < 0.001$) times was achieved. In 3 and 6 months, the indicator increased compared to the data immediately after treatment by 1.6 times and 1.8 times respectively. The difference regarding the data before treatment remained lower by 2.2 times and 2.0 ($p < 0.001$) times, however, the difference between the subgroups 1A and 1B in 3 months and 6 months was already 2.1 times in both cases.

Conclusions. While analyzing the clinical researches, which included the index of hygiene, the index evaluation of periodontal tissue pathology and the index of gingival bleeding, the patients with chronic non-calculous cholecystitis with inflammatory periodontal diseases, and comparing these data with the indicators of patients without pathology of the biliary tract, it was found that the clinical course of inflammatory periodontal diseases was much more difficult in these patients. The presence of pathology in the hepatobiliary system in patients increases the risk of periodontal disease.

In addition, while analyzing the index evaluation, we see that inclusion of antidysbiotic Lekvin in the form of tablets and oral applications in the integrated treatment is likely to improve the Green-Vermillion's Oral Hygiene Index, the papillary-marginal-alveolar index, and reduces the index of bleeding in the main research group. Therefore, in order to improve the efficacy of treatment, it is advisable to use this anti-dysbiotic drug in the complex treatment, and the results obtained in 3 and 6 months after treatment indicate a long-lasting positive effect.

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